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Asian Americans and Cardiometabolic Risk

Why and How to Study Them

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The Cardiovascular Disease in Asian and Pacific Islander Populations NHLBI Working Group paper in this issue of the *Journal* (1) outlines an initiative to study Asian American groups with regard to their risk of diabetes and cardiovascular disease. The impetus stems from the increasing population of Asian immigrants in the U.S. Comparing the 1990 and 2000 U.S. Census data, there was a 48.3% increase in the number of citizens of Asian origin and a 9.3% increase in those of Native Hawaiian or other Pacific Island origin (2). In addition, Asian immigrants make up a significant proportion of foreign-born people; 23.4% are Asian, 0.3% are Native Hawaiian or Pacific Islander (3). Given the changing U.S. population and to better serve patients, it is important to assess the particular risk factors of these groups.

Why Are These Studies Important?

Specific population studies have become more important in the era of personalized medicine. The current tools that we have to assess risk may not be applicable in Asian Americans. Studies have shown that Framingham study risk factors were not enough to account for the prevalence of cardiovascular disease seen among Asian Americans. Moreover, there is a disparate risk profile between Asians and other groups and within the different Asian groups themselves (4).

A large epidemiology study can elucidate the underlying genetics, pathophysiological differences, and biological mechanism of cardiovascular disease risk factors in ethnic populations. Studies of this nature will help us to better define groups at risk and design optimal prevention and treatment plans for these groups, which will have major implications for future public health cost. There have been instances of more personalized treatments in other American ethnic groups. For example, a subgroup analysis of ALLHAT (Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial) of African-American patients found angiotensin-converting enzyme inhibitors to be less effective than calcium-channel blockers or thiazide diuretics in lowering blood pressure (5). This 5 mm Hg difference in blood pressure lowering translated to a higher rate (19% to 40%) of fatal coronary artery disease, nonfatal myocardial infarction, stroke, and heart failure. This group-specific analysis led to a change in practice regarding the first-line management of hypertension. In the same way, studies of Asian-American groups may find more effective, specific preventive and treatment regimens. In an era of cost-effective and personalized medicine, we still do not have a risk factor profile or optimal treatment for a large group of our patients. Thus, it is crucial that we study this group.

How Do We Study This Group?

But how do we study a group that is made up of people from >60 countries, with varying languages, cultures, differing immigration status, and socioeconomic mix while accounting for acculturation?

To be sure, it is a daunting task, filled with unique challenges. However, there are some broad foundations that can be established to help guide the studies. To save cost and adequately power the study, investigators should focus on clustering Asian groups to capture large patient numbers. The groups could be divided into East Asian, South Asian, Southeast Asian, and Hawaiian and Pacific Islanders, because these groups have shown a similar risk profile in the past (6). There is a need for a systematic approach to recruitment as well as compensation for certain language and cultural barriers of each group. To get a larger response, investigators could target specific geographic areas where there are concentrations of certain Asian groups.

Next, investigators must work together to devise standardized definitions of body composition, metabolic syndrome, risk factors, and cardiovascular outcomes so the studies will be coherent and applicable. Also, it is important to have both longitudinal and cross-sectional data. Instead of using valuable resources to conduct numerous small studies, a national effort should be made to fund longitudinal, multicenter trials of Asian Americans, capturing different socioeconomic groups in various phases of acculturation. In addition to the collection of demographic and physical examination data, assessment of laboratory markers of disease as well as imaging studies should be done in a cohort

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of patients. Markers other than low-density lipoprotein and high-density lipoprotein, such as lipoprotein(a), seem to be important in South Asians. Ideally, future studies would include a cohort with laboratory data that would look not only at lipid profile, markers of insulin resistance, and diabetes but also markers of inflammation like high-sensitivity C-reactive protein to determine if these confer the same risk in Asian Americans.

One way we can accomplish this would be to oversample Asian Americans in the National Health and Nutrition Examination Survey (NHANES). Another method could be to model the study after the NHANES, designed specifically for Asian Americans. There is precedence for such a NHANES-based study. For example, the New York City Health and Nutrition Examination Survey is a community-based health survey conducted by the New York City Department of Health and Mental Hygiene that is similar to NHANES. There will be numerous challenges for these types of studies. For instance, most likely the studies will only capture legal immigrants. Also, there will be difficulty assessing acculturation. However, the benefits from such studies are great.

This is an important and unique opportunity to systematically study Asian Americans. Prospectively studying the Asian-American population will give us an opportunity to see how cardiometabolic risk changes over time and how best to prevent such risks and how best to treat Asian Americans.

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